

REMARKS/ARGUMENTS

Favorable reconsideration of the present application is respectfully requested.

Claims 2-8, 12-14 and 17 were indicated as being allowable if rewritten in independent form. In response, allowable Claim 2 has been canceled and the subject matter thereof has been incorporated into Claim 1. Claim 9 has been rewritten in independent form and amended to incorporate the subject matter of allowable Claim 12. Claims 10-12 and 15 have been canceled. Claims 1, 3-9, 13 and 14 therefore recite subject matter which has been indicated as being allowable.

Claims 16 and 17 have not been amended since Applicants respectfully submit that Claim 16 also recites patentable subject matter.

According to a feature of the invention set forth in Claim 16, a magneto-impedance sensor comprises an electromagnetic coil wound around a magnetic sensitive member having a characteristic change responsive to an external magnetic field, including a sensor substrate, an insulator and an electromagnetic coil made up of foil-like conductive patterns arranged in adjacent relation to an outer surface of the insulator. According to the invention, the sensor substrate has electrodes extending from the electromagnetic coil and the magnetic sensitive member, the electrodes being formed on one of the outer surfaces of the sensor substrate which is substantially orthogonal to the axial direction of the magnetic sensitive member. An example is shown in Figure 8 wherein the electrodes 51-52 are located on the sidewall surface 1032 which is orthogonal to the axis of the amorphous wire 2. Therefore, the magneto-impedance sensor element is suitable for mounting a magneto-impedance sensor element to an electronic circuit board or the like, wherein the axial direction of the magnetic sensitive member is in the direction of the thickness of the electronic circuit board or the like. Because the surface of the magneto-impedance sensor element on which the electrodes are

disposed can be positioned to face in the same direction as that of a mount surface of the electronic circuit board or the like, it is possible to easily perform connection work using leads, etc.

Claim 16 was rejected under 35 U.S.C. §103 as being obvious over U.S. patent 6,472,868 (Takayama et al.) in view of U.S. patent 4,656,750 (Pitt et al.). According to the Office Action, Takayama et al. discloses a magnetic field sensing device including a magnetic impedance element comprising a magnetic sensitive member 1 having a characteristic changed responsive to an external magnetic field, insulation 2-3 formed to allow penetration of the magnetic sensitive member, an electromagnetic coil 4-5 made up of foil-like conductive patterns, and electrodes orthogonal to the sensing member (Figure 11), wherein it would have been obvious to have provided such a magnetic field sensing member for the heading sensor of Pitt et al. However it is respectfully submitted that Claim 16 defines over any combination of these references.

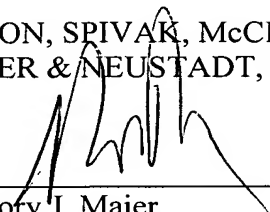
Figure 11 of Takayama et al. discloses a magnetic impedance sensor element formed as a thin film with a sensor plate 1 having bias and negative feedback coils 4-5 wound thereon through the intermediary of insulating layers 2-3. Sensor terminals 10 and 11 are provided at ends of the sensor plate 1. However, Figures 11-13 of Takayama et al. do not teach a sensor *substrate* for holding the sensor plate 1 (magnetic sensitive member), wherein electrodes extending from the coils 4-5 and the sensor plate 1 are formed on outer surfaces of such a sensor substrate. Instead, the electrodes 10-11 are mounted at the ends of the sensor plate and coil, *but not a sensor substrate*. Claim 16, which recites that electrodes extending from the electromagnetic coil and the magnetic sensitive member are “formed on one of the outer surfaces of said sensor substrate which is substantially orthogonal to the axial direction of said magnetic sensitive member” therefore defines over this prior art, as do its dependent Claims 17-18.

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Applicants therefore believe that the present application is in a condition for allowance and respectfully solicit an early notice of allowability.

Respectfully submitted,

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